REMARKS

Claims 1-10 were again presented for reconsideration and reexamination and, in the aforementioned Office action, were all rejected under 35 U.S.C. §112, second paragraph, and under 35 U.S.C.§103(a) as allegedly unpatentable over Marash (US 5,825,898) In view of Coker (US 4,581,758). By this amendment, the claims have been further amended to define the invention more clearly over the cited art and to overcome the Section 112 rejection. Claims 2, 3, 7 and 8 have been cancelled, leaving claims 1, 4-6, 9 and 10 in the application, which is presented for the Examiner's reconsideration and reexamination.

REJECTION UNDER 35 U.S.C. §112, SECOND PARAGRAPH

The Examiner contends that the phrase "without the need for beam steering or noise estimation techniques" is inconsistent with Applicant's disclosure of multiple microphones and adaptive filters, which the Examiner equates with "the well known delay-and-sum beam steering process." Although not totally in agreement with the Exmainer's position on this issue, Applicant has cancelled the words "beam steering or" from the offending phrase to expedite prosecution. The phrase now reads "without the need for noise estimation techniques." It will be recalled that the Marash disclosure is concerned with a combination of beam steering and interference estimation and cancellation. The cancellation is effected by subtraction in a difference unit (8). Applicant's invention uses no such device. In Marash, a "reference channel matrix" provides an estimate of interference (noise) and a "main channel matrix" provides a measure of a desired signal together with interference. Subtraction of reference channel matrix from the main channel matrix subtracts out the noise estimate from the signal. In the present invention, there is no equivalent of the "reference channel

matrix," no estimate of the noise, and no subtraction of a noise estimate. Therefore, the phrase "without the need for noise estimation techniques" is believed to be accurate and not inconsistent with Applicant's specification. Withdrawal of the 35 U.S.C. §112 rejection is respectfully requested.

REJECTION UNDER 35 U.S.C. §103(a)

Claims 1-10 were rejected as allegedly unpatentable over Marash in view of Coker. Claims 2 and 3 have been combined with claim 1 to enhance the novelty of this claim. Similarly, claims 7 and 8 have been combined with claim 6. Claims 1 and 6 are believed to define patentable subject matter for the following reasons:

(1) Claims 1 and 6 accomplish performance enhancement without direct estimation and subtraction of noise components. The Examiner attempts to equate the Marash teaching of a reference channel matrix (for estimating noise) with Applicant's signal summation circuit, which reduces noise because the noise components are incoherent. The fact is that Applicant's invention as disclosed and claimed makes no estimation and subtraction of noise.

(2) Claims 1 and 6 include speech detection coupled to enable adaptive filtering. The Examiner asserts that it would have been obvious to add such a feature to Marash and Coker, because this would have eliminated unnecessary processing, but there is no suggestion in either reference of this particular feature.

(3) Claims 1 and 6 include speech conditioning circuitry to reduce reverberation effects in the output signal. The Examiner contends that the speech conditioning circuitry is rendered obvious by the Marash difference unit for subtracting the reference channel matrix (noise estimate) from the main channel matrix (source plus noise). The Examiner also relies on this feature in part to "read on" Applicant's signal summation

circuit. (See paragraph of action spanning pages 4 and 5). Applicant respectfully suggests that the main channel matrix of Marash has absolutely nothing to do with speech conditioning circuitry for reducing reverberation effects. The main channel matrix provides an estimate of noise, nothing more.

(4) There is nothing in either the Marash patent or the Coker patent suggesting that the bandpass filters of Coker might be advantageously combined with the system of Marash. Coker is concerned with direction identification of sound sources. Bandpass filters are disclosed for the purpose of removing low-frequency components of speech or eliminating high-frequency noise, but Coker is principally concerned with identifying sources by directionality, for purposes of aiming directional microphones, rather than with noise reduction. Likewise, there is nothing in Marash suggesting the use of bandpass filters for noise reduction.

Dependent claims 4, 5, 9 and 10 should be allowable with their parent claims.

In view of the foregoing, claims 1, 4-6, 9 and 10 are believed to be allowable over the cited art and an action to this effect is respectfully requested.

Respectfully submitted,

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